CHAPTER 2

REVIEW OF RELEVANT LITERATURE

The purpose of this chapter is to provide the conceptual framework for this study. Semantic mapping is an effective strategy to enhance reading comprehension. Building bridges here refers to the concept of helping students make links or connections at three levels in the process of reading. These include helping students make links between words within the context, between sentences within the paragraph and between paragraphs so that ultimately the readers comprehend the whole text.

Reading comprehension is viewed as a process where readers build bridges between their own existing experiences and the new information from the text in order to make meaning, that is, making sense of the print.

2.1 Theories about the Reading Process.

Prior to 1960's during the period of behaviourism there was little attempt made to explain the covert cognitive processes that took place as readers engaged in reading. It is covert because the process is not subject to observation. Huey (1908) however, recognized the complex nature of the reading process as early as 1908. In 1917, Thorndike had proposed the idea of reading as 'reasoning', a concept that has relevance even today. Bartlett (1932) noted that students' recalls were reconstructed and these reconstructions were different from the original text read. Bartlett further explained that readers are actively engaged during the process of reading.

Many theories have been developed to describe the reading process. One such theory is the traditional theory by Gough (1972), who viewed reading as a process of meaning
transfer that required readers to extract meaning from the print. This process or concept of reading is also known as the bottom-up process.

2.1.1 The Bottom-up Process

This process of reading is basically “decoding individual linguistic units such as phonemes, graphemes and words” (Carrell, 1988, p.2). It refers to the constructing of meaning from the text from the smallest unit, (the word) to the largest (phrases and sentences). Here readers are seen as passive ‘consumers’ of other people’s text and meaning and the teacher’s role is to merely help the reader to extract meaning from text.

Barnett (1989) refers to this process as data-driven or text-driven model of comprehension in which the reader begins with the written text (the bottom), and constructs meaning from letters, words, phrases and sentences. The reader then “processes the text in a series of discrete stages in a linear fashion” (1989, p.12). The reader therefore, uses this data from the text before higher level mental process takes place.

2.1.2 The Top-down Process

This process also views reading as a linear process but “moves from the top, the higher level mental stages, down to the text itself” (Barnett, 1989, p.13). The reading process is driven by the reader’s mind that is at word level. This model of reading is referred to as the “psycholinguistic model” by Goodman (1968) and Smith (1971). In the top-down processing predictions are made about the text based on one’s prior experience and background knowledge and then the reader checks the text for confirmation to accept or refute those predictions (Carrell, 1988). Experts in reading have characterized this as “concept driven, top-down pattern in which higher-level process interact with the flow of information through lower-level process” (Stanovich, 1980, p.34).
According to Carrell (1988), in the top-down view of second language reading the reader is viewed as an active participant in the reading process, making predictions and processing information whereby the reader's prior experience and background knowledge play a significant role in the process.

2.1.3 The Interactive Process

During the 1970's theorists like Widdowson (1978) began to view second language reading as an active process in which the L2 reader is an active information processor who predicts while sampling only part of the actual text. According to Grabe (1988) reading, especially in the second language, has changed dramatically from a serial (or bottom-up) model to "reading as an interactive process" (p.59). Reading in this light is a process of combining textual information with the information a reader brings to a text. In this view the reading process is not simply a matter of extracting information from the text. Rather, it is one in which the reading activates a range of knowledge in the reader's mind that he or she uses, and that, in turn may be refined and extended by the new information supplied by the text (Widdowson, 1979). Carrell & Eisterhold (1983) similarly, concluded that our understanding of reading is best described as the interaction that occurs between the reader and the text, an interpretive process. According to Eskey (1988), the interactive model posits a constant interaction between bottom-up and top-down processing in reading, each source of information contributing to a comprehensive reconstruction of the meaning of the text. Rumelhart (1977) has stated that the most efficient process of text is interactive - a combination of top-down and bottom-up processing modes.
The interactive view of reading stresses the active role of the readers in utilizing their prior knowledge to guess the meaning of the text that he engages in. Active readers make predictions and they confirm these predictions as they read further.

According to McKeown et al. (1985) research has emphasized that not only does lack of knowledge about a topic impede comprehension, but the extent of knowledge influences the quality of understanding that a reader can construct. The goal of reading instruction is to produce readers who understand what they read. The major change in current views of comprehension is the focus on what is in the readers' head. Reading comprehension is the bridge between the text and the reader. The diagram below summarizes recent conceptions of reading comprehension. It is based on the work of many researchers but is perhaps most directly related to the interactive model developed by Rumelhart (1977).


The student's prior knowledge and inferencing skills are the core of the model; reflecting conviction that comprehension involves connecting information from the text to information already stored in the reader's head. Information comes to the reader from the
text. The reader uses information about decoding vocabulary meaning, grammar cohesion and passage structure to help connect the new information to what is already known. The output is meaning. Meaning is constructed from prior knowledge, it is not inherent in the text. Semantic webbing allows students to develop their metacognitive strategies for both expository and narrative text. For expository text they are able to distinguish between key ideas and supporting details. For narrative texts students are able to predict outcome, visualize the setting, link events and consequence and cause and effect relationships. They can also summarize the story using semantic webbing. Students are given a repertoire of strategies with mapping that they can use one at a time or in combinations.

2.1.4 Schema Theory

Most researchers in the field of reading acknowledge that Bartlett (1932) is the first one to use the term schemata. In his book *Remembering*, Bartlett (1932) wrote that schema refers to "an active organization of past reactions or past experience" (p.201). He was concerned about explaining the constructive nature of remembering. This is the basic concept about schemata.

Schema theorists have made significant contributions to a better understanding of the reading process. One of the principle features of a schematic theoretic perspective of reading is that the reader needs to anchor new information and ideas with some prior knowledge in order to understand the new information.

In order to enhance their comprehension skills the teacher has to anchor new information to the existing schemata. A great deal of research has been done to seek evidence to support the schema theory. Bartlett (1932) was the first psychologist to use the term 'schema' which refers to the readers' abstract knowledge structure. The meaning of the text is
not inherent in the text. The reader cannot comprehend by merely decoding words in the text. Comprehension occurs when the schemata or knowledge already stored in the reader’s memory is able to interact with the new information that is the reader has to bring to bear his prior knowledge to comprehend the text.

2.1.5 What is Schemata or Prior Knowledge?

Prior knowledge or schemata can help unlock text which at first glance seem inaccessible. Below is a nursery rhyme that pokes fun at grandiloquence.

Scintillate, scintillate, globule aurific,
Fain would I fathom thy nature specific,
Loftily poised in the ether capacious,
Strongly resembling a gem carbonaceous. (Source: Unknown)

When we read it for the first time we may not understand the rhyme immediately. Yet if we are given the cue that the first word means Twinkle, twinkle..., the whole rhyme is going to be instantly recognizable to those who are familiar with this nursery rhyme. Even the difficult words will make sense to us. This is the power of prior knowledge. We can comprehend a difficult text as long as our prior knowledge is activated.

Carrell (1987) writes about how schemata play a primary role in reading comprehension that is, what the reader reads activates new information and this information is incorporated into what is already known. According to Rumelhart (1980), schema theory is knowledge that is cognitively organized as schemata, which are frameworks for interpreting, storing and retrieving information and experiences. The schema theory asserts that activating existing prior knowledge before reading would help improve reading comprehension. The theory explains how information from the text becomes integrated with the reader’s prior knowledge thus influencing the comprehension process. According to the schema theory, that which is experienced and learnt is stored in the brain in networks or categories called
schemata. (Ausubel, 1963). A well-known psychologist, Ausubel (1963) describes how in meaningful learning, the general ideas, which the learner already knows 'subsume' or 'anchor' the new particular propositions found in texts. These schemata are incomplete and are constantly being further developed. As new information is received the schemata are restructured and fine tuned (Pearson & Spiro, 1982).

Skilled readers actively call into play and integrate the knowledge and experience stored in their memories with the words in the printed page (Durkin, 1981). In fact, research has shown that background knowledge about a topic, particularly understanding of key vocabulary is a better predictor of text comprehension than any measure of reading ability or achievement (Johnson & Pearson, 1982; Johnston, 1984). This was illustrated in the nursery rhyme earlier. The key words were twinkle, sky, and the diamond.

2.2 Approaches to Teaching Reading Comprehension

As educators it is important for us to study and understand the multitude factors that contribute to the reading process because comprehension is integral to effective teaching and learning. Educators teaching reading comprehension have devised several strategies. One such strategy is by Langer (1984), called the Prereading Plan (PreP) in which students are prepared for reading by activating their prior knowledge through a series of prompt questions that are generated to expand students’ knowledge about the text prior to reading. Palinscar and Brown (1985) developed a paradigm based on Vygotsky’s (1978) notion about the zone of proximal development. This concept of Vygotsky’s accentuates the teacher’s role in empowering the learner. Assistance is obtained from the teacher or from peers during group work. Palinscar and Brown (1985) call their approach ‘Reciprocal Teaching’, in which students take turns assuming the role of the teacher through structured dialogue. It involves
nurturing the development of four related comprehension monitoring and fix-up strategies which the teacher models and allows students to practise. These strategies include summarizing after one paragraph is read, generating questions after reading, asking for clarifications and making predictions about what is to happen next.

To maximize reading comprehension teachers need to find ways to help students activate and retrieve prior knowledge related to the topic about which they will be reading. Teachers must provide activities that can give students an opportunity to mobilize existing information (schemata) so that they are ready to relate to their reading. Similarly, vocabulary must be introduced in a meaningful way so that existing knowledge is activated, allowing the new information to be linked to the old. Pearson (1985) says that in concept development approaches, the emphasis is on where a word fits in a reader’s schema rather than being limited to what the word means or how it is used in sentences. Comprehension is something that happens when readers read, and comprehension instruction should focus students’ attention on that fact. Before students read, the teacher can enhance comprehension by making sure that students have appropriate background concepts. The purpose of reading is to get meaning and what they already know can help.

The primary focus of comprehension research is on what the reader brings to the text. Without an appropriate background concept, a reader cannot comprehend. Therefore, the time spent before reading, building and activating relevant concepts is critical (Heimlich & Pittleman, 1986). Most comprehension instruction should take place before reading. At secondary level it is useful to give some introductory overview, and semantic mapping is a useful organizer. Attention must be paid to activate prior knowledge. Students become aware of the usefulness of what they already know in understanding what they read. If the teacher is
able to activate background knowledge before reading the students will understand the text more readily. Semantic mapping is one strategy that can be used to activate students' prior knowledge about a text.

2.2.1 The Concept of Semantic Mapping

Semantic mapping or webbing is a method that activates and builds on the student's prior knowledge. The semantic mapping process influences students to become active readers by triggering the brain to retrieve what is known about the topic and use this information in reading. This activation of prior knowledge is critical to reading comprehension. To keep students interested in academic tasks it is important to use their considerable knowledge of the world and their active participation in learning. An activity for teaching reading comprehension that fulfills these two requirements in combination is semantic webbing. According to Anderson and Pearson (1984), students' background knowledge should be explicitly activated prior to reading using the schema theoretic mode of reading. Harman (1987) advocates that motivation is enhanced when the learner has some familiarity and the interest in the content of instructional material. Activating this familiarity and interest prior to reading comprehension task by using students' existing background knowledge can motivate them to carry out reading comprehension activities. Semantic mapping is designed to help students tap their prior knowledge about a topic and to expand that knowledge through discussion. It is an effective way to learn new concepts, a procedure for activating students' schemata and a technique to improve comprehension.

Semantic maps are diagrams that help students see how words are related to one another. The procedure generally includes a brainstorming session in which students are asked to verbalize associations to the topic or stimulus words as the teacher categorizes them on the
board. This phase of semantic mapping provides students with an opportunity to engage actively in a mental activity, which retrieves stored prior knowledge, and to see graphically the concepts they are retrieving. Students learn to relate new concepts to their background knowledge, thus promoting better comprehension.

2.2.2 Features of Semantic Maps

Freedman & Reynolds (1980) provide a basic model for constructing a web. It consists of the web’s core theme, the web strands, the strand supports and the strand ties. The core theme or question is the focus of the web, which is the purpose of inquiry. All other information and ideas are related to the core question. The web strands are the answers which students provide as their prior knowledge is activated through questions. Strand supports are the facts, inferences and generalizations that the students take from the text to give clarity and validity to the strands to differentiate one strand from another. The strand ties are the relationships strands have with each other.

One important aspect of mapping that teachers should remember is that there is no one set way to map contents of a text. Each individual can have their own style and preference according to their perception of the contents of the text. However, we have to ensure that although the maps may differ in design, the common features need to be retained. According to Brozo and Simpson (1995), these common features include:

i. the major theme, topic and concept

ii. other important ideas and terms are boxed, circled or otherwise set off in some way

iii. lines and arrows are used to connect related ideas

iv. information becomes more specific as map lines radiate from the major theme or topic.
Students should discover through their own experiment, an approach to mapping that is meaningful and apt to comprehend the contents of the text. Students have to be taught to develop sensitivity to the clues the writer provides to the organization of the contents so that they can create a most accurate and useful map. Mapping should be student generated and by providing students with organizational aids it will promote learning.

2.2.3 Semantic Mapping as a Teaching Strategy

Semantic mapping is a teaching procedure through which students are guided in constructing visual displays to represent relationships between and among concepts as they are presented in the text. Fox (1979) has noted that successful reading requires integration of both left and right hemisphere of the brain. While the left brain specializes in syntactic, logical and organization of aspects of language, the right brain processes shapes, patterns, feelings and emotions, visualization and enhances creativity. Most teaching strategies are left brain-oriented. Activating the right brain is necessary for creative thinking. By encouraging mental imagining the teacher stimulates right brain processing. When students learn to construct a pictorial framework of the new word, concepts and stories, recall and comprehension is improved.

Studies to evaluate the effectiveness of semantic mapping have supported the use of semantic mapping as an effective teaching strategy. Toms-Bronowski (1983) found that fourth to sixth grade children who were taught target vocabulary words through semantic mapping and semantic feature analysis significantly outperformed students who learned with words through contextual analysis. Beck and McKeown (1983) recommend that teachers use a vocabulary technique that builds on prior knowledge, emphasizing that semantic mapping provides an alternative technique to vocabulary instruction that focuses on the relationship
between new and known words. Pittleman, Levin and Johnson (1985) found that under achieving students who received semantic mapping instruction had significantly higher gain scores than did students in control classes. The study also confirmed that teachers could feel comfortable using semantic mapping in both reading ability groups and whole class content areas instruction.

Semantic mapping can graphically and visually display relationships among ideas and concepts. The technique encourages higher thought process, stimulates oral interactions and fosters ideas. Mapping also enhances literary discussion that highlight setting, characterization, conflict and theme (Norton, 1992). Webbing is an excellent way to develop instructional units around literature. It helps students understand important characteristics of story structure, increases their appreciation of literature, and improves their appreciation of literature, and improves their reading competencies (Norton, 1992). Webbing allows students to identify areas of interest, brainstorm ideas, and identify literature selections and other materials that are appropriate for each area and to conduct research of work together in-groups. All these activities can motivate students of different competency level, all age groups right from primary level to tertiary level.

Research is abundant in showing the efficacy of mapping as an instructional strategy to improve the comprehension of students (Armbuster & Anderson, 1982; Davis & Winek, 1989; Johnson, 1982; Naughton, 1994; Zaid, 1995). In each of these studies, experimental subjects who were taught to use a graphic picture or map for recall of information outperformed the control group. In a study by Ruddell and Boyle (1984), at the University of California at Berkeley, they found that mapping was particularly helpful in understanding the relationship among ideas in difficult materials. Students were able to successfully transfer
reading skills to mapping when given a choice of several formats. The application of semantic mapping as a strategy to enhance comprehension is a logical one, since it draws heavily on activating prior knowledge of the topic. It prepares students to understand, assimilate and evaluate information to be read (Johnson & Pearson, 1984).

Studies evaluating the effectiveness of semantic mapping as a pre-reading strategy support the effectiveness of semantic mapping procedure. Hanf (1981) found that semantic mapping is an effective motivator as well as a valuable diagnostic tool for assessing students' prior knowledge and encouraged divergent thinking. The semantic mapping procedure activates the students' prior knowledge of the topic and helps them to focus on the relevant schema and thereby better preparing them to understand, assimilate, and evaluate the information in materials to be read. This provides the teacher a tool for assessment of the students' background knowledge of schema availability of the topic. As an assessment tool semantic mapping allows students to develop a map of the topic before reading the text to learn the key vocabulary necessary for comprehension and to activate their prior knowledge based on the topic. This exercise can motivate the students.

As a post-reading technique teachers can give students an opportunity to recall, organize and represent graphically the information they have read especially after discussion. The strength of mapping is that it allows students to share information from their own prior knowledge. An idea or fact presented by one student can trigger ideas from other students.

2.2.4 Teacher’s Role in Semantic Mapping

In semantic mapping the teacher functions as a facilitator. This encourages students to discuss, share and direct their own learning. It provides students the opportunity to bring to bear that knowledge from their prior knowledge. Students can also research
further into the topic or focus area. Since mapping has a strong impact as a motivational and brainstorming technique teachers can use it appropriately and effectively in teaching reading comprehension in the classroom. With mapping the topic or focus idea will trigger the brain to retrieve information stored in the memory. It facilitates text comprehension because it draws upon and capitalizes on the background knowledge, which when activated and applied to the text links the old and new and if this link is successful, comprehension is enhanced (Pearson & Spiro, 1982). Meaningful learning can be promoted by activities that can lead students to activate prior knowledge and tie to the new information. The generation of self-question is a questioning manipulation that requires meaningful transformation of the material by the reader in the form of semantic mapping. Mapping promotes active processing of materials as the reader progresses to take advantage of their prior knowledge and experience in order to make relationships between facts more understandable and memorable. Semantic mapping requires students to generate elaboration and this facilitates learning. It stimulates prior knowledge and can assist students in organizing and retrieving information as it can categorically structure information in graphic form. The technique can orient the learner to activate previously assimilated knowledge that supports the facts they need to learn in the new text, hence, facilitating comprehension. Mapping provides students with an additional tool in their repertoire of study techniques. It is a technique that is useful to teachers when they are training students to access relevant prior knowledge, in situations where students might not automatically do so.

2.2.4 Semantic Mapping as a Learning Strategy

There are three aspects of semantic mapping as a learning strategy that are, as a shaping strategy, a strategy for connecting ideas and for organizing ideas.
Creating a map requires students to think about what they read select the most important points and supporting details, decide how the information is related and then illustrate this material graphically. All these require active critical thinking skills. Mapping is a shaping activity; it helps students establish priorities and keep reading focused. The procedure requires students to represent ideas in a diagram rather than an outline. Hanf (1971) describes it as a verbal picture of ideas, which are organized and symbolized by the reader. Mapping requires the students to think because they have to analyze, evaluate and reason critically. They must organize and categorize ideas according to the author’s plan. Once students learn how to identify this structure they can be taught to create a map which best illustrates the author’s ideas and text structure. Thus, mapping, according to Meyer (1979) is “an exercise in thinking which cannot be performed without the active intellectual participation of a student” (p. 109).

This mapping of ideas for brainstorming helps to link the ideas in the text. Semantic mapping links and connects ideas and hence helps to enhance comprehension. Semantic mapping can be used for a variety of texts including expository, descriptive and narratives. Students are tested on a text extract from a literary work and if they lack the background information, about the text it would be difficult to comprehend the passage. To enhance reading comprehension of a literary text, teachers can provide the outline or framework of the story-line to help students understand the writer’s style and expressions. A brief construction of this background knowledge allows them to visualize better so that they can understand what happened prior to the events in the passage or the causal relationship between the extract and the whole novel. For short stories too, teachers can map out the events and episodes that
lead to the climax, or map out cause-effect relationships. Students could also map out their predictions and solve the problems that lead to the crises.

Semantic mapping increases comprehension in the manner in which it logically organizes new information for readers utilizing words as medium. It is an effective method of applying the schema theory because mapping is an arrangement of vocabulary or concepts about a topic. Concepts are categorized according to themes. Mapping helps to build a bridge between the known and the new and can be used to link students' basic concept of the topic to both abstract scheme and concrete examples. Mapping has been found to be a useful strategy in prior knowledge activation, assessment and passage comprehension. Semantic mapping helps students to construct a model for organizing and integrating information that can be applied to a wide variety of situations. It is an effective way to illustrate the relationship between content area and all content-related information. The strategy is versatile enough to be used by individual students, for pair-work, group discussion as well as an instructional strategy for a whole class. It motivates students of all age-levels to involve them actively in the thinking-reading process. Based on observation of students' reaction while conducting pilot sessions using semantic mapping, Hanf (1981) suggested that the strategy might have great potential as a motivator. She has reported that students involved in the mapping process showed a high level of interest.

2.2.5 Pictorial Representation of Semantic Mapping

Creative mapping is a pictorial version of semantic mapping. The pictorial version uses images to organize and convey the learning of the text. These are particularly insightful for lower proficiency readers who have difficulty in organizing information from their own content reading. Students who find it difficult to see links or relationships of ideas and
information will find semantic mapping useful to do so. In creative mapping a visual image is drawn to represent the main concept of the text. This image allows students to focus their reading and develop on the main idea. The example below by Naughton (1994), illustrates a reading passage entitled ‘The Titanic Sinks’, capturing its main details. This visual image stimulates critical thinking and promotes rereading of the text because students are eager to fill in sections of the map with details from the text. As a pre-reading activity students can fill in details from their prior knowledge. As they read they could make modifications and add in specific details in the while-reading stage. As they complete the full diagram the teacher could ask students to rewrite the whole episode.

The pictorial illustration builds the framework of the texts’ main idea and details. As Naughton (1994) puts it, the advantage of creative mapping is ideas can be connected graphophonemically and syntactically as well as semantically. In this exercise the students’
prior knowledge had to be activated and with the illustration in the drawing most of them
could fill in the details. Naughton (1994) advocates that the activation of the prior knowledge
in creative mapping focuses the readers’ schemata to account for the relationships among the
elements. This relationship or connection is vital in comprehension. As students attempt to
construct meanings from the text they are also using their schemata to integrate what they
know and what they read from the text. This enhances reading comprehension.

2.3 Teaching of Vocabulary in Reading

Most theorists and researchers in education have assumed that vocabulary
knowledge and reading comprehension are closely related, and numerous studies have shown
the strong correlation between these two (Baker, 1995; Nagy, 1988; Nelson-Herber, 1986).

It is generally accepted that students learn vocabulary more effectively when they
are directly involved in the constructing of meaning rather than memorizing definitions.
Kucker (1990) argues that pre-reading activities help enormously in reading comprehension.
Christen and Murphy (1991) contend that research clearly emphasizes that for learning to
occur new information must be integrated with what the learner already knows. They feel that
teaching vocabulary, as a pre-reading step is an instructional intervention that could help
students comprehend a text. In this study I would like to investigate the progress of
vocabulary growth from context. According to Stahl (1991), as word learning grows a
person’s notion of the meaning of the word grows from the first encounter with the word
where the meaning of the word is ‘totally unknown’ to a ‘partial knowledge’ of the word.
Vocabulary growth from context means the changes in a word meaning that occur as a word
goes from being completely unknown and unrecognizable to at least somewhat recognizable.
Research has shown that background knowledge about the topic, particularly understanding of
key vocabulary is a better predictor of text comprehension than any measure of reading ability or achievement (Johnson & Pearson, 1982; Johnson, 1984).

2.4 Assessment of Reading

The reading process involves covert mental activity, which cannot be observed directly, therefore, inferences about the process can be made from the behaviours that the reader displays. According to psycholinguists, comprehension depends very much on the extent to which agreement between the reader’s reconstruction of the writer’s meaning and the writer’s intended meaning is achieved.

The goal of reading is comprehension, which involves complex cognitive processes. Since direct observation of mental operations cannot be done, we have to stress on what can be observed that is, the end product. The use of questions to assess comprehension is a traditional one, which is still utilized today. Many investigators (Carrell, 1981, Carrell & Wallace, 1983, Safiah Osman, 1982/83 & Johnson, 1981) have used written recall procedures to assess reading comprehension performance of ESL readers. However, due to the limited skill of ESL writers this procedure has been subjected to criticism (Safiah Osman, 1985). As Goodman & Goodman (1978) have pointed out, ESL learners “often understand much more in listening and reading than they can say or write” (p.624). The students involved in this study are form 6 students who are more advanced learners. At STPM level reading comprehension is assessed through the written recall procedure therefore, students have to be trained to write out their answers.

Reading comprehension is tested with the use of open-ended questions. According to Brozo and Simpson (1995), over the past years teachers have regarded the question-answer format as the most convenient, objective and cost-effective means of comprehension
assessment. Brozo and Simpson (1995) use the term “authentic assessment” that refers to tests created by teachers for students as opposed the standard achievement test set by the examination board. These tests created by teachers “reflect creative methods of discovering how students read and think” and they are “consistent with current perspectives of how best to teach as assessment of literacy and learning process” (p. 94). Johnston (1989) is of the opinion that the assessments devised by the teacher invariably yield richer and more meaningful information about students’ learning than the traditional testing practices. The practicing teacher is the one with the prerogative to make individual judgements of students. Furthermore, the results of assessment have direct and immediate instructional implications.

For assessment of reading comprehension for advanced students the questions are devised based on the higher levels of Bloom's (1956) Taxonomy. Bloom has categorized questions that commonly occur in educational settings into six types according to their levels of difficulty. The first level is testing of ‘knowledge’ where questions asked, are those that require recall of information such as dates, events and places and question cues which could include words such as ‘list’, ‘identify’, ‘label’, and ‘tabulate’. ‘Comprehension’ is the next level requiring students to understand information, grasp meaning, interpret facts, compare and contrast and predict consequences. The third level is the ‘application’ level. Here students may have to use apply concepts or theories they learn in new situations. This is followed by ‘analysis’, ‘synthesis’ and ‘evaluation’ levels, which are more challenging. Although questions are based on all six levels of the taxonomy, more marks are allocated for questions involving analysis, synthesis and evaluation. Analysis here refers to the breaking down of information provided, so that, students can differentiate, make inferences and find evidence to support views. For synthesis students are required to creatively apply prior knowledge and
skills to produce new or original text. The skills include adapting, categorizing, comparing, interpreting, modifying, and validating. At the evaluation level students have to judge the value of the text based on personal values or opinions. They are required to demonstrate skills such as the ability to compare and contrast, conclude, critique, convince, summarize, justify, and support.

**Conclusion**

Reading comprehension as a process involves the active construction of meaning among parts of the text and between the text and personal experiences. Schema theory has a special relevance for teachers of reading comprehension in that it questions the conventional view that meaning resides in the text. *The World Book* (1979) dictionary defines schema as a "diagram, plan or scheme". One of the most effective ways of applying the schema theory is through semantic webbing. Semantic webs are actually visual organizers that serve as organizational frameworks to promote thinking and language development. They improve comprehension in the manner in which they logically organize new information. Teachers should develop this technique in classroom as learning takes place when information is related to the existing knowledge structures among students. Semantic webbing helps to present information in a systematic and organized way which will further enhance understanding. Semantic webbing generates ideas and new information is added when prior knowledge has been activated. These ideas can be generated through brainstorming and group discussions. It can stimulate the mind to think creatively and help answer probing or inferential comprehension questions better.